UNIVERSITY AND EDUCATIONAL INTELLIGENCE

LONDON.—At a meeting of Convocation of the University of London held on Tuesday, the supplemental charter empowering the granting of degrees to women was considered. After a long and warm discussion a resolution appoving of the draft of the supplemental charter was carried by 242 against 132.

EDINBURGH.—A letter has been received from the Treasury intimating that 20,000*l*., the first instalment of the grant by the Government for the buildings of the University of Edinburgh, will be inserted in the estimates for this year.

LEEDS.—A course of ten lectures in connection with the Gilchrist Educational Trust will be delivered in the Albert Hall, Mechanics' Institution, Leeds, on Friday evenings, commencing Friday, January 25, by Prof. A. H. Green, M.A., on "The Geology of Coal;" Prof. L. C. Miall, F.G.S., on "Coal Plants and Animals;" Prof. T. E. Thorpe, Ph.D., F.R.S., on "The Chemistry of Coal;" Prof. A. W. Rücker, M.A., on "Coal as a Source of Power;" and Prof. J. Marshall, M.A., on "The Coal Question." An extra lecture will be given by Dr. W. B. Carpenter, F.R.S., on the "General Results of the *Challenger* Expedition." The admission is one penny.

HALLE.—The winter attendance at the University is 887, including, under theology, 189, law, 112, medicine, 106, philosophy and science, 480. Prussia is represented by 711. The attendance of foreigners is unusually small—England, 2, America, 5, Russia, 11, Austria, 20, &c. The corps of instructors numbers at present 90. The University library, one of the most valuable in Germany, possesses over 100,000 volumes.

SOCIETIES AND ACADEMIES

LONDON

Royal Society, December 13, 1877.—On electrostriction, by Prof. Mills, D.Sc., F.R.S. If the bulb of an ordinary thermometer be coated chemically with silver, and then electrically with a metallic deposit, the mercury will traverse some portion of the scale, and finally take up a definite position independently of temperature. Of the metals hitherto worked with, copper, silver, iron, and nickel, constrict the bulb; zinc and cadmium distend it. The author shows that if y be the total obtainable effect after a time x; D the portion of it due to diametral constriction; L the portion of it due to longitudinal constriction; dl two geometrical factors, we have, in the case of the cylindrical thermometer—

$$y = Dd^x + Ll^x,$$

D being always greater than L. For a spherical thermometer receiving more metal on its equatorial region than on its poles,

$$y = Dd^x - Ll^x.$$

For a spherical thermometer, with uniform deposition,

$$y = Dd^x.$$

The author determines in atmospheres pressure the total electrostrictive effect; and points out that, since the deposited metal can be removed by a chemical solvent, we are thus able to measure chemical effect in atmospheres pressure.

Linnean Society, December 20, 1877.—Prof. Allman, F.R.S., president, in the chair.—Dr. Maxwell Masters made some remarks on an interesting specimen of *Colletia cruciata* received from Sig. Fenzi, of Florence. In this case, from the same branch there proceeded shoots with broad, flattened, deltoid spines characteristic of *C. cruciata*, but also others with slender or cylindrical spines very similar to, but more cylindrical than, those of *C. spinosa*. It would thus seem this interesting specimen may tend to clear doubts which have arisen respecting the relation of these two species and that of *C. bictonensis*, Lindl. = *C. cruciata*, Hook.—Mr. Worthington G. Smith made some remarks on a fossil fungus, its zoospores being shown under the microscope. He also exhibited drawings, among others sections of *Boletus subtomentosus*, stating that in a specimen five inches in diameter there are 17,000 pores or tubes. Each pore, when cut across, shows 2,000 cells on the surface. The number of surface cells on the underside of a specimen is 36,000,000. The cells in an entire plant are calculated to be 61,500,000,000, and the number of spores produced by the same specimen, 5,000,000,000.—Mr. S. W. Silver exhibited a series of vegetable products, arrows, and other weapons, &c., from the Fiji Islands and New Caledonia, collected by Consul Edgar Layard. Among the specimens was a mass of the poison said to tip the native arrows with. The composition of this is supposed to be identical with that described by the Rev. Thomas Powell in the Society's *Journal* of last year.—A paper was read on the anatomy of the Elk (*Alces machlis*) by Prof. M. Watson and Dr. A. H. Young. In this a full account of the organs of digestion, generative system, myology, &c., was given, preceded by remarks on the literature, &c., of the subject.—An abstract of a communication, "Descriptions of new genera and species of phytophagous coleoptera," by Dr. J. S. Baly, was read by the secretary in the absence of the author.—The Algæ of the Arctic expedition, by Prof. Dickie, was a paper dealing with the collections made by Capt. Feilden, Dr. Moss, and Mr. Hart, who accompanied Capt. Sir G. Nares. It is noted that of fresh-water species there are representatives of fourteen genera, many of which are common to Europe. Of Diatomaceæi thirty-one genera and seventy species have been identified, most being marine. Seven species of olive-coloured Algæ are given, but it seems no marine examples belonging to the red series were obtained. The collection embraces an area between 78° and 83° north latitude. Then followed a memoir on the minute structure of *Stromatopora* and its allies, by Prof. A. Nicholson and Dr. J. Murie. This interesting form (or group) has long been a puzzle; different writers assigning it a place respectively among Corals, Hydrozoa, Foraminifera, Sponges, and Polyzoa. The authors treat the subject by discussing at length history and literature, the general and minute structure of a typical stromatoporoid, mode of occurrence and original constitution, classification, affinities, and systematic position. The following genera are defined:—*Stromatopora*, *Caunopora*, *Clathrodictyon*, *Stylodictyon*, *Stromatocerium*, *Pachystroma*, and *Dictyostroma*, and a number of new species described. They believe it (or them) to have been originally calcareous and not siliceous, as has been maintained by some, substantiating this by weighty facts and reasons. They discard the notion of its alliance with the Nullipores or belonging to the Corals, Hydrozoa, or Foraminifera, showing wherefore in absolute essentials it is deficient and therefore untenably associated with either. To certain of the Polyzoa some examples hold a striking resemblance in many respects (as likewise is specially the case with certain of the corals), and possibly further research may bridge difficulties in the way of classing it with the former group, but their researches do not completely justify this step. Neither, strictly, does it belong to the horny, siliceous, or calcareous sponges, as at present understood, though the tendency of the data point to the probability of sponge organisation predominating. In this case, however, by absence of spicules, &c., the existing group of *Calcispongiæ* could not contain the stromatoporoids which, under negative evidence, would form a new order of calcareous sponges—Stromatoporoidea.—Messrs. A. S. Bicknell, E. A. Floyer, and Capt. Legge were elected Fellows of the Society.

Meteorological Society, December 19, 1877.—Mr. S. H. Eaton, M.A., president, in the chair.—Commander E. G. Bourke, R.N., J. A. Douglas, W. H. La Touche, B.A., G. J. Pearse, W. S. Rogers, and W. Tyrer were elected Fellows.—The following papers were read:—Notes on the meteorology and physical geography of the West Coast of Africa from Cape Verd to the Cape of Good Hope, by Commander E. G. Bourke, R.N. This paper gives the results of the observations which the author made during the five years he was stationed on the above coast.—On the meteorological observations made by the Norwegian Deep Sea Exploring Expedition in the North Atlantic in 1876 and 1877, by Prof. H. Mohn. This expedition has been organised in order to carry out for the North Atlantic and the Arctic Ocean an inquiry similar to that conducted by the *Challenger* Expedition. The vessel employed was the *Vöringen*, of 400 tons burthen, and the period the summer months of 1876 and 1877. The barometrical observations were taken at first with a mercurial barometer and afterwards with an aneroid which was compared daily with the mercurial barometer on board. The temperature was obtained by a special screen hoisted up on the fore-stay. It was found that this gave very satisfactory results. The experiments conducted with a screen similar to that used by our Meteorological Office on ship-board gave readings too high when the sun shone on it. The sling thermometer was also tried, and gave a temperature on the mean a shade below the screen in the rigging. The wind observations were taken with an anemometer, and Prof. Mohn

describes his own anemometer at length, and deals with its corrections in detail. The speed of the ship was determined by a special logging machine, and by this means and the anemometrical observations, the true motion of the wind was ascertained. The part of the paper which presented most novelty was that referring to the evaporation of the sea-water. Two different forms of atmometers were described, both of them devised by Prof. Mohn, and the theory of their action and of the errors to which the experiments were exposed are carefully considered. The paper concluded with tables of the diurnal range of the various meteorological elements for the period of observation.—Report on the phenological observations during 1877, by the Rev. T. A. Preston, M.A. As a rule, the same order of flowering of plants is observed this year as in 1876, viz., that plants came into flower first in the south-west of England and then in regular order to the north of Lincolnshire, where plants were latest in coming into flower. From the tables accompanying the report may be deduced the general state of the weather as regards temperature, and to a certain extent moisture. There is no doubt but that damp acts more powerfully than cold in retarding the flowering of some plants and this has been particularly evident this year. The year, as a whole, has been very unfavourable to vegetation; the bitter cold of May checked the growth of plants, and by the autumn there was comparatively little new wood, and that not properly ripened.—Note on a peculiar fog observed at Kew on October 18, by G. M. Whipple, B.Sc., F.R.A.S.

Royal Microscopical Society, January 2.—Dr. J. Millar in the chair. A paper was read by Dr. Bartlett on the detection of toxic matter connected with typhoid and other enteric diseases, in the course of which he gave an account of his attempts to trace to its ultimate source the cause of a recent outbreak of typhoid fever, and showed that whilst chemical analysis had failed to discover any impurity either in the water or milk, he had been able, by means of microscopical examination, to detect in the water certain bodies, presumably of a fungoid character, which were identical with those found in the bowels of persons who had succumbed to the disease.—Mr. Slack brought before the notice of the meeting a section of bone of *Megalosaurus bucklandii* and its remarkable resemblance to the structure now identified as peculiar to birds, was pointed out by Mr. Charles Stewart.

PARIS

Academy of Sciences, January 7.—M. Fizeau in the chair.—M. Daubrée was elected vice-president, from the Section of Physical Sciences (the other candidates being MM. Wurtz, Chevreul, and Blanchard).—M. Peligot reported on volumes just published, or being published, by the Academy. Vol. xxxix. of the *Mémoires* is devoted chiefly to researches by M. Chevreul, vol. xli. to researches by MM. Becquerel; a second volume on the transit observations, relating those at Pekin and St. Paul's Island, has been published; a memoir on *Phylloxera vastatrix*, by M. Cornu, appears in vol. xxvi. of the *Mémoires des Savants Étrangers*. The Academy lost by death, in 1877, one member, M. Leverrier, and five correspondents, MM. Santini, Hofmeister, Braun, Weddell, and Gintroc.—M. Faye presented, in the name of the Bureau des Longitudes, the first volume of its *Annales*. In these *Annales* will be inserted, with additions, the memoirs which the Bureau formerly published in the *Connaissance des Temps*, its circle of activity having been enlarged.—On persulphuric acid, a new oxygenated acid of sulphur, by M. Berthelot. This is obtained pure and anhydrous, by making the electric *effluve* act, with strong tension, on a mixture of equal volumes of dry sulphurous acid and oxygen; it is got in the dissolved state by electrolysis of concentrated solutions of sulphuric acid, or by mixing with care a solution of oxygenated water with sulphuric acid, concentrated, or diluted with less than one equivalent of water. At a temperature near zero, it crystallises, and resembles, in its general aspect, anhydrous sulphuric acid, only it has longer, and thinner, and transparent needles. The formula, determined variously, is S_2O_7. Heated in a flame, the substance is immediately decomposed into oxygen and anhydrous sulphuric acid. In air it gives off thick fumes. In concentrated sulphuric acid it dissolves without liberating oxygen. In water it dissolves, giving thick fumes and effervescence, &c.—On a new flat regulating spiral for chronometers and watches, by M. Phillips. The theory of this is explained.—On some new modifications in the telephone, by M. Breguet. According to indications by MM. Garnier and Pollard, a thin plate of sheet iron is arranged with the end of a blacklead pencil pressing slightly on the central part; plate and pencil are connected by wires of ordinary lines with the two ends of the bobbin wire of a Bell telephone, which has, instead of the magnetic bar, a bar of soft iron. A battery of two Laclanché elements is placed in the circuit. The plate, vibrated by the voice, causes variations in the blacklead, and so in the resistance of the circuit and the intensity of the permanent current, which produces alternative attractions and non-attractions in the electromagnet of the receiving telephone; thus the voice is reproduced. M. Breguet is hopeful of an increased intensity of effect by such a method.—On the production and properties of a new suction-ram without air-reservoir, capable of drawing water from all depths, by M. de Caligny.—Density of liquid oxygen, by M. Pictet. The author experimentally confirms M. Dumas' view, who obtained the expression $\frac{1}{16} = 1 = \delta$, for the solid, and probably the liquid state also. The jet of oxygen showed a strong polarisation of the electric light, indicating the presence of solid dust, probably small crystals of solid oxygen.—On the quartic of Steiner, by M. Amigues.—On a single principle containing the whole theory of curves and of surfaces of any order or class, by M. Serret.—On a theorem of M. Villarceau; remarks and consequences, by M. Gilbert.—On phenomena of dispersion in metallic reflection of polarised luminous or calorific rays, by M. Mouton. The greater the wave-length the longer is the interval during which mirrors act like glass on light, simply impressing a certain rotation in the original plane of polarisation, and the shorter therefore is that in which the original rectilinear polarisation of the incident ray is changed by the fact of reflection into elliptic polarisation.—On normal ethyloxybutyric acid and its derivatives, by M. Duvillier.—Researches on the intracellular alcoholic fermentation of plants, by M. Muntz. Plants kept in air give no trace of alcohol; those kept in nitrogen give a quite appreciable quantity, and they continue to live and grow. These facts are a confirmation of M. Pasteur's views.—On the inversion and alcoholic fermentation of cane-sugar by mouldiness, by M. Gayon.—Some remarks on the origin of alcoholic yeast, by M. Trécul.—Verbal response of M. Pasteur.—On a new gorilla from Congo, by MM. Alix and Bouvier. This seems, like chimpanzees, to have more arboricolar habits than the *Gorilla gena*. The name of *G. Mayema* is given it from that of the negro chief of the village near which it was killed.—On the formation of fibrine of the blood studied with the microscope, by M. Hayem.—On a process for obtaining recomposition of the light of the solar spectrum, by M. Lavand de Lestrade.

CONTENTS